

BRUSHWELLMAN
ENGINEERED MATERIALS

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July 30, 1985

Ms. Susan C. Linner
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3 Triad Center, Suite 350
Salt Lake City, Utah
84180-1203

RECEIVED

AUG 01 1985

DIVISION OF OIL
& GAS & MINING

Dear Ms. Linner:

Re: Topaz Mining Property, ACT/023/003

Brush Wellman has completed its review of your letter of May 13, 1985 and has the following responses for your consideration. We would like to preface our responses with the mention that the Division has noted its comments are a result of its initial review of the information submitted by us in 1977 and 1981. We presume that this refers to our Notices of Intent and Mining and Reclamation Plans filed with the Division on March 16, 1977 and February 3, 1981. It has been our understanding that this information was considered by the Division to be in compliance with the Act and Rules and had already received tentative approval. We have since been waiting to complete the resolution of bonding to receive your final approval. We are therefore surprised that the staff has apparently decided to redo the previous review of the applications and to request a substantial amount of additional information.

We do recognize that to develop a bond amount we must complete our reclamation plans which have been delayed until the revegetation test plots provided the information that we and the Division sought back in 1977. We are in the process of developing these plans and will submit a comprehensive final reclamation plan for the entire operation in the near future. The comments included in your May 13th letter will prove helpful in developing our plans but we request the Division's consideration of our understanding that the operations have already received tentative approval and the task before us now is only to finalize the reclamation plans and complete the bonding.

Our responses to your comments follows:

Your 5-13-85 letter

Comment "Due to the long expected mine life of the Topaz Mining

Property, it is recommended by the Division that the operator file for a permit based on a 5-year term basis."

Response We would prefer to exercise our right under Section 40-8-16 of the Act to receive an approval for the life of the operations, subject to reasonable revisions as the operations may change. This understandably gives us a definite reclamation obligation which is easier to plan for than one which is subject to change.

Rule M-3(1)(a)

Comment "The operator has provided the location of the land but needs to provide information on the maps as to the total area affected in acres."

Response The enclosed map entitled, "Acreage of Current and Proposed Area of Disturbance" shows the outlines of the current and proposed areas of disturbance with individual acreages. The sum of these individual areas is 835.7 acres.

Rule M-3(1)(d)

X Comment "The applicant should submit a large scale map (i.e. USGS 7.5 minute quad) depicting locations of all springs, wells, stock ponds, and streams (if any) in and adjacent to the permit area."

Response The previously mentioned map shows the locations of 2 wells which are presently not utilized. To the best of our knowledge, there are no springs or streams in the subject area and the only stock watering ponds present are the ponds in the bottoms of our pits. These vary in size with the seasons and the amount of runoff which occurs.

T 14S R 12W section 4
T 12S R 12W section 31

Rule M-3(1)(f)

X Comment "The applicant shall supply a geologic map of the mine plan and adjacent area. All fault zones, strikes and dips of structures shall be indicated. All information submitted to DOGM will be held as confidential and not disclosed without written approval."

Response The enclosed geologic map entitled "Topaz Utah Geology" supplies the requested information.

X Comment "The applicant shall supply a map which shows all wells and springs on and adjacent to the mine plan area."

Response The map presented in response to M-3(1)(a) above contains this information.

Comment "The applicant shall discuss any adverse effects mining will have on ground water sources including a brief description of the ground water resource."

Response In the vicinity of the mine, ground water is encountered at a depth of approximately 320-350 feet. Due to the degree of mineralization in the aquifer host-rock, this water is high in dissolved minerals and is not fit for human consumption. We haul water to the mine camp from the mill where deep water wells produce good quality water. The open pits are 200-250 feet deep and do not penetrate the water table. The mining operations are not expected to have any adverse effects on the ground water and may actually have a positive recharge effect.

Comment "The applicant shall submit geochemical analyses showing the presence and amount of any toxic and hazardous materials within each lithologic layer of overburden to be removed and stored."

Response We have not conducted any whole-rock analyses of the overburden and thus do not have this information. However the Division did sample the tuff overburden material from the test plot sites on July 11, 1978. The Utah State University soils lab results dated August 23, 1978 indicate that the salinity and SAR are in the phyto-toxic range for most plants. The results of the test plots seem to bear this out. It would appear that the overburden tuff therefore may be toxic material as defined by Rule M-2(k). We have recently resampled the tuff overburden material and the mineralized portion of the rhyolite overburden. These samples have been sent to Utah State University for analysis. The results of these analyses will be sent to the Division when we receive them.

Rule M-3(1)(f)&(h)

Comment "The applicant shall describe any hydro-thermal activity on and adjacent to the mine plan area and discuss if mining activities will intercept hydro-thermal sources."

Response There is no geothermal activity on or adjacent to the mine area. Many drill holes have been tested for temperature gradients and the data collected did not identify the presence of a geothermal resource. The deepest hole tested was at 1,476 feet. Temperature gradients were generally low. We do not expect to intercept any geothermal resource that would effect mining operations.

Rule M-3(1)(h)

Comment "The applicant should submit a narrative describing the disposal or uses of any water encountered or collected in the pits. If no water is to be disposed of, the applicant should

briefly describe why no disposal will occur and commit to addressing this subsection of Rule M-3 if any disposal will occur in the future. The applicant is also requested to submit the results from a water quality sample from one high grade and one low grade pit."

Response The only water which collects in the pits is runoff. This water is allowed to evaporate in the pits and is occasionally consumed by sheep and wildlife with no adverse effects. We occasionally use the water for dust control on the mine roads. There is no discharge to down-stream water systems and no such discharge is anticipated. We sampled the water from the pits last June and the results of complete water chemistry analyses will be sent to the Division when they are available.

Rule M-3(5)

Comment "All exploratory drilling and related functions shall be included in the application under the requirements of M-3(5) and specific information related to all holes presently drilled or proposed as detailed in M-3(a) thru (d)."

Response We completed our exploratory activities on the Topaz mining properties in 1978. Since then we have been engaged in development activities as defined by the Rules. Thus we have not prefiled exploration notices with the Division for this development drilling. We would like to remain in this status for reasons of convenience as our development drilling is close-spaced and includes hundreds of holes.

Comment "Report form MR-9 shall also be filed with the Division for all mineral exploration work undertaken and approved within the limits of this rule. It shall not be filed in lieu of reporting requested under Rule M-8."

Response We request that the Division treat our drilling at the Topaz Mining Property to be development work and not exploration. Filing Form MR-9 would be unnecessary in this case. Under the circumstances this would be in keeping with sound mining practices.

Comment "All holes made as step outs to an initial proposed drilling program should be described in (a) through (d) above to the Division as soon as possible. The additional information may be filed as an addendum to the original notice and will not require approval."

Response We request that this requirement be waived for our development drilling.

Rule M-3(2)(e)

- ✓ Comment "Final revegetation plans will be developed in conjunction with an on-going test plot program. These plans must be submitted to the Division for review and approval at least 90 days prior to any final reclamation. The plans must include a description of: the seed mix(es) and rate of application in Pure Live Seed (PLS) per acre and/or stocking rate (plants per acre) for seedlings, seeding and planting techniques (including seasons), seedbed preparation, mulching, fertilization, and irrigation (if appropriate). However, all contemporaneous or interim stabilization measures to be used in the interim should be submitted at this time."

Response As per the Division's recommendations, our original Notice of Intent and Mining and Reclamation Plan included a commitment to conduct revegetation tests to determine appropriate techniques for reclamation of our dumps. These test plots were installed according to the Division's designs in 1978. We would now like to conclude our revegetation research and complete the final reclamation plans at this time. We are in the process of collecting the applicable data from the test plots and will be submitting our proposed revegetation plans in the near future. These final plans will include the specific types of information you have requested. This will allow us to derive a reclamation cost for bonding purposes and thus achieve the final permit approval.

- ✓ Comment "A revegetation monitoring plan for the bond release period must be submitted. this plan should include parameters to be measured, sampling techniques and timing."

Response This will be part of our final reclamation plans which are now being prepared.

- ✓ Comment "Since sheep grazing is part of the land use for the permit area, it may be necessary to fence reclaimed areas."

Response This will be addressed in our final reclamation plans.

- ✓ Comment "It appears that the only variable thus far tested in Brush Wellman's test plot program was fertilizer. Although results do not demonstrate favorable revegetation, they do show that the higher fertilizer rate was best. As a result of observations made of test plots and naturally invading plants during the April 16, 1985 site visit, the Division feels that revegetation is feasible and that the test plots should be revised. Attached is an outline of a suggested revegetation test plot design which the Division would like to discuss with you and have implemented this year."

Response As mentioned above, we are in the process of collecting data from the test plots and from surrounding disturbed and undisturbed areas to enable us to design a revegetation plan

which will be part of our overall reclamation plan. We feel that there is enough information available at this time to complete a final reclamation plan which will meet the requirements of the Rules. This does not preclude voluntary test plots on our part which may result in future revisions to this reclamation plan. We appreciate your recommendations on a potential test plot design for possible implementation.

Rule M-5 SURETY GUARANTEE

Response We appreciate your explanation of the bonding process. We intend to develop, for the Division's approval, a final reclamation plan looking to the life of the operations. Following agreement on the quantities and scope of reclamation proposed, we will follow your recommendations for the estimation of the surety amount.

Rule M-8(2)

Response We understand that once we have the Division's approval we must regularly file an annual operations and progress report according to Rule M-8(b). We intend to comply with this requirement.

Rule M-10(1)

Comment "The operator must include in the reclamation plan, provisions for post-mining land use compatible with probable land uses on abandonment. Realizing the nature and magnitude of the disturbance, the operator will need to detail specific areas for land use."

Response In our 1977 application we proposed that grazing is the most realistic post-mining land use. This continues to be our primary objective for the property in general but our final reclamation plan may delineate areas for which we will request a variance from this goal. An area which we feel may have a different post-mining land use includes the maintenance shops located at the camp. We feel that these facilities may be of some use to the County road department for staging their equipment and crews when they maintain the roads in this remote area. We would like to have this possibility reflected in our reclamation plan and, at the time of reclamation, we will determine the County's interest in taking over title to these facilities.

Rule M-10(2)(a)

Comment "Operations at the Rainbow pit included underground mining operations. Brush Wellman should include on the site map of the Rainbow Pit, the location of the abandoned underground working. If hazardous conditions are present from underground mining, the operator should so state and offer a plan or commitment to mitigate these circumstances."

Response The underground openings in the vicinity of the Rainbow Pit are caved at the portals precluding access thus removing any hazard. No additional mitigation of this situation should be required.

Rule M-10(2)(b)

Comment "The operator needs to address the disposal of trash and debris in the mine plan. The operator should propose a plan for and commit to a disposal plan for waste materials incidental to mining and that plan should be in accordance with the Rules and Regulations of the Division of Health."

Response We maintain a sanitary landfill in the Roadside Dump in accordance with the requirements of the Juab County Health Department. This facility receives the solid wastes generated in the camp which are occasionally burned and covered. This practice will continue until the completion of all mining and reclamation activities.

Rule M-10(2)(c)

Comment "The operator has not submitted in the reclamation plan, any proposal or plans for the plugging and capping of drill, core, or other exploratory holes as set forth in Rule M-3(5)."

Response As we have previously stated, we have interpreted the Rule M-5 to only apply to exploratory activities. Our drilling activities are normally considered in the industry to be of a developmental nature and not exploratory. This activity should preferably be covered under our mining and reclamation plans and not as separately permitted exploration holes under Rule M-3(5). We will be happy to accomodate this situation in the text of our mining and reclamation plans but we feel that the notice requirements of Rule M-3(5) should not apply.

Rule M-10(2)(e)

Comment "The operator should provide information as to what safety measures are being implemented for protection above highwalls, benches and other excavations at the site during operation of the mine and upon final abandonment. Such compliance measures should be within MSHA regulations."

Response On page 3 of our MR-Form 2 we described the following safety measures which fall within MSHA requirements, "a permanent, impassible barrier will be constructed around the high wall of the pit (this will apply to all pits). The barrier will be a narrow ridge of blocky, resistant rock at least 4 feet high with steep side slopes. The barrier will be erected approximately 20 feet back from the heel or tip of the pit. The broken rhyolite material will normally be the resistant rock used for

the barrier." We have not changed this commitment and it is a provision of our current stripping contract.

Rule M-10(3)

Comment "The applicant should request formal approval from the Division for allowing the unreclaimed open pits to be used as water impounding facilities upon abandonment."

Response We are currently reviewing all of our Rule M-10 commitments to determine which ones are not in concert with our presently approved Mining and Reclamation Plan. We have recognized that we need to request a variance from a number of these reclamation standards and will include the Division's recommendation in regards to M-10(3). We expect to bring this issue up when we submit our final reclamation plan.

Rule M-10(4)

Comment "As part of the reclamation plan, the operator shall, if possible, regrade all waste piles and fills to a rounded configuration and at such slopes so as to minimize safety hazards"

Response Plate 3 of our present Mining and Reclamation Plan shows the typical cross-section of our dumps prior to revegetation. This configuration was approved by the Division as late as 1981 and we will comply with this configuration as it provides for adequate public safety and has not resulted in excess erosion of the slopes.

Comment "Such fills or waste piles need to be identified by the operator. The operator should also estimate and quantify final size and configuration of both the pits and the waste piles for at least the permit term."

Response The map enclosed to comply with the Division's request under Rule M-3(1) above should suffice to answer this request.

Comment "Fills and waste piles should also include a description of proposed drainage control, surface erosion control, and vegetation to be used for stabilization of the slopes."

Response We will include discussions of these issues in our final reclamation plan which is now under development.

Rule M-10(4) and (11)

Comment "The applicant should submit plans for control of erosion from fill slopes. Following an onsite tour of the facilities, it has been determined that these plans need not be extensive in nature. The applicant has committed to regrading of all fill slopes greater than 20% in the MR-2 submitted on February

3, 1981 in order to control erosion. As an additional option, the Division will accept a berm or ditch around the toe of such slopes in order to contain the sediment at the site. The applicant may decide which of these options they wish to implement."

Response The Division is mistaken on the wording of our 1981 MR Form-2. On page 6 of 8 we state that the maximum graded slope will be approximately 45 degrees. On page 7 of 8 we state that if slope erosion persists, slopes over 20% will be scarified on contours not regraded. However, we will comply with the Division's suggestion to construct a berm or ditch around the toe of slopes, which exhibit excess erosion, to contain the sediment produced.

Rule M-10(5)

Comment "Reclamation standards for highwalls and open cuts consist of backfilling against or cutting back the wall to achieve a slope angle of 45 degrees or less. However, much of the open cuts at Brush Wellman are solid rock and if the operator can show sufficient design criteria, the above standards may be waived. The operator should also consider those areas above the cuts which consist of unconsolidated material that may have to be graded to achieve stability."

Response We recognize that our commitment to this portion of Rule M-10 is not in concert with the applications that we previously submitted to the Division. We believe that our experience with our pits indicates that the highwalls are stable at the mining slopes and that there is no need to decrease these slopes. We will address this issue in our final reclamation plan in which we will propose that a number of variances from Rule M-10 are warranted.

Rule M-10(7)

Comment "The operator has provided information as to the type and procedures used for developing and maintaining roads within the permit area. Reclamation of roads and pads should be addressed in the plan. Although the expected mine life makes it difficult to determine final configuration and details, the operator should consider existing and proposed roads and pads for the permit term.

Comment Roads and pads within the affected area should be indicated on the affected area maps."

Response We will address the issue of reclamation of roads and pads in our final reclamation plan. As we have stated in the past, many of the minor roads which we routinely use around our property are pre-existing and necessary for other's use of the surrounding land. We intend to make sure that these

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routes, or alternate routes that we construct, are left in a passable condition when we complete reclamation work. We will delineate these routes on a map which we will submit with our final reclamation plan. All other mine roads that serve no continuing purpose will be reclaimed.

Rule M-10(9)

Comment "The operator needs to identify and commit to demolition and removal of all structures, utility connections, equipment and debris prior to regrading and abandonment. Approval may be granted for continuing or post-mining land use given sufficient justification."

Response We will submit a complete list of all fixed facilities with our final reclamation plan. We intend to remove these facilities from the surface prior to regrading and revegetation work. There may be an exception from this commitment for those facilities that the County or some other user may take title to for a continuing use but this will not be able to be definitively addressed until the time of reclamation.

Rule M-10(12)

Comment "Brush Wellman must supply a vegetation inventory of the surrounding undisturbed vegetation using professionally accepted inventory techniques. This will be used as the basis for setting revegetation success standards."

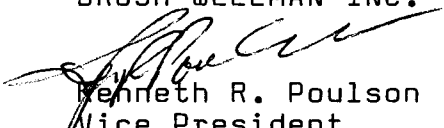
Response We have already planned to do this and will include the data in our final reclamation plans.

This response addresses each of the Division's comments and clarifies our present position in regards to development of a final reclamation plan. Should you have any questions on this material, please contact Lee Davis at this office who will finalize Brush Wellman's permitting with the Division.

We appreciate your cooperation which aids us in carrying on this significant Utah mining industry.

Sincerely yours,

BRUSH WELLMAN INC.


Kenneth R. Poulson
Vice President
Mining & Exploration

Enclosures